

AMENDMENTS TO THE CLAIMS

In the Application, please amend the set of claims as hereinafter indicated.

1. (Previously Presented) A vehicle safety system comprising:
at least one light source;
at least one beam-forming assembly optically coupled to said at least one light source;
at least one emitter optically coupled to said at least one beam-forming assembly;
at least one object detection sensor operable to detect at least one object and generate at least one object detection signal;
a controller coupled to said at least one beam-forming assembly and said at least one object detection sensor; and
a memory coupled to said controller and operable to store a plurality of selectable beam patterns;
wherein said controller is operable to select at least one beam pattern from said selectable beam patterns stored in said memory and accordingly control at least one said beam-forming assembly so as to configure light received from at least one said light source for emission via at least one said emitter to thereby produce at least one beam illumination pattern for enhancing visibility of a roadway;
wherein said controller is operable to select at least one other beam pattern from said selectable beam patterns in response to at least one said object detection signal so as to change at least one said beam illumination pattern emitted from at least one said emitter; and
wherein said controller is operable to change at least one said beam illumination pattern emitted from at least one said emitter in response to at least one said object detection signal by adjusting at least one beam illumination parameter selected from the group consisting of beam amplitude, beam location, beam focus, beam angle, and beam shape.

2. (Canceled)

3. (Canceled)

4. (Previously Presented) A vehicle safety system as in claim 1, wherein at least one said object detection sensor is a receiver and is operable to receive a communication signal from at least one said object, and said controller is operable to adjust at least one said beam illumination pattern in response to said communication signal.

5. (Previously Presented) A vehicle safety system as in claim 1, wherein at least one said object detection sensor is a passive object detection sensor.

6. (Previously Presented) A vehicle safety system as in claim 1, wherein at least one said object detection sensor is selected from the group consisting of a radio frequency transceiver, a radio frequency receiver, a radio frequency sensor, an infrared transceiver, an infrared receiver, an infrared sensor, a laser transceiver, and a laser sensor.

7. (Previously Presented) A vehicle safety system as in claim 1, wherein said vehicle safety system further comprises a transmitter coupled to said controller and operable to transmit a first communication signal, and at least one said object detection sensor is operable to receive a second communication signal in response to said first communication signal and adjust at least one said beam illumination pattern in response to said second communication signal.

8. (Previously Presented) A vehicle safety system as in claim 1, wherein said controller is operable to adjust at least one said beam illumination pattern in response to at least one vehicle operating condition.

9. (Previously Presented) A vehicle safety system as in claim 8, wherein at least one said vehicle operating condition is selected from the group consisting of velocity, speed, directional heading, acceleration, location, steering wheel angle, brake status, throttle angle, turn signal status, traction control status, differential wheel speed, light status, turn indicator status, windshield wiper status, windshield wiper speed, and engine speed.

10. (Previously Presented) A vehicle safety system as in claim 8, wherein said vehicle safety system further comprises a navigation system coupled to said controller, and said controller is operable to receive information related to at least a portion of said at least one vehicle operating condition from said navigation system.

11. (Previously Presented) A vehicle safety system as in claim 1, wherein said controller is operable to adjust a vehicle state in response to at least one said object detection signal.

12. (Previously Presented) A vehicle safety system as in claim 11, wherein said controller, for adjusting said vehicle state, is operable to adjust at least one vehicle operating condition selected from the group consisting of velocity, speed, directional heading, acceleration, location, steering wheel angle, brake status, throttle angle, turn signal status, traction control status, differential wheel speed, light status, turn indicator status, windshield wiper status, windshield wiper speed, and engine speed.

13. (Previously Presented) A vehicle safety system as in claim 11, wherein at least one said object detection sensor is operable to receive a cruise control signal, and said controller in response to said cruise control signal is operable to adjust said vehicle state.

14. (Previously Presented) A vehicle safety system as in claim 1, wherein said controller is operable to adjust a cruise control parameter in response to at least one said object detection signal.

15. (Previously Presented) A vehicle safety system as in claim 1, wherein said controller is operable to independently adjust each said beam illumination pattern that is emitted by each said emitter.

16. (Previously Presented) A vehicle safety system as in claim 1, wherein at least one said object detection signal is generated in response to illumination generated by and received from at least one said object.

17. (Previously Presented) A vehicle safety system as in claim 1, wherein at least one said object detection signal is generated in response to at least one communicative light signal generated by and received from at least one said object.

18. (Previously Presented) A vehicle safety system as in claim 1, wherein at least one said emitter is operable to emit a communicative light signal, and at least one said object detection sensor is operable to generate at least one said object detection signal in response to said communicative light signal.

19. (Previously Presented) A headlight system for a vehicle, said headlight system comprising:

at least one light source;

at least one beam-forming assembly optically coupled to said at least one light source;

at least one emitter optically coupled to said at least one beam-forming assembly;

a transmitter operable to generate a first communication signal;

a receiver operable to receive a second communication signal that is generated by an object external to said vehicle and in response to said first communication signal; and

a controller coupled to said at least one beam-forming assembly, said transmitter, and said receiver;

wherein said controller is operable to control at least one said beam-forming assembly so as to configure light received from at least one said light source for emission via at least one said emitter to thereby produce at least one beam illumination pattern for enhancing visibility of a roadway;

wherein each said beam illumination pattern has associated beam illumination parameters including beam angle, beam focus, beam amplitude, beam position, and beam shape; and

wherein said controller is operable to change at least one said beam illumination pattern in response to said second communication signal by adjusting at least one of said beam illumination parameters.

20. (Currently Amended) A method of operating a headlight system on a vehicle for adaptively illuminating a roadway to enhance visibility, said method comprising the steps of:

controlling said headlight system to selectively produce a beam illumination pattern that illuminates said roadway;

detecting at least one communication signal generated from at least one object that is external to said vehicle; [[and]]

controlling said headlight system, in response to and in accordance with each said communication signal, to selectively produce an alternative beam illumination pattern that illuminates said roadway; and

controlling said headlight system, in response to and in accordance with each said communication signal, to adjust its illumination output, including beam shape, on said roadway in response to said at least one communication signal selectively alter its beam illumination pattern by adjusting at least one beam illumination parameter selected from the group consisting of beam angle, beam focus, beam amplitude, beam position, and beam shape.